

Serial No.: 09/811,360

Attorney Docket No. 2502440-991501

Amendment dated December 5, 2003 (resubmitted January 7, 2004)

Reply to Office Action dated September 23, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions , and listings, of claims in the application.

**Listing of the Claims:**

Claim 1 (currently amended): A total shoulder arthroplasty apparatus for recreating an anatomic proximal humeral configuration, comprising:

a stemless, partial humeral head fixation for coupling to a cut humeral surface, wherein the partial humeral head fixation includes a partial humeral head including a base surface having and a rotationally-stabilizing base extension protruding therefrom including multiple fins for impaction into a cancellous region of the cut humeral surface, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 2 (Cancelled)

Claim 3 (Previously amended): The apparatus of Claim 1, wherein one or more of said multiple fins are substantially planar.

Claim 4 (Original): The apparatus of Claim 1, wherein the protruding base extension includes at least two fins formed to have a cruciform shape.

Claim 5 (Previously amended): The apparatus of Claim 1, wherein the shape of one or more of said multiple fins is plano-triangular.

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Claim 6 (Previously amended): The apparatus of Claim 3, wherein the protruding base extension further includes at least one linear fin.

Claim 7 (Original): The apparatus of Claim 1, wherein the cancellous region said base extension protrudes into is non-intramedullary.

Claim 8 (Currently amended): A total shoulder arthroplasty apparatus for recreating an anatomic proximal humeral configuration, comprising:

a stemless, partial humeral head fixation for coupling to a previously cut humeral surface, wherein the partial humeral head fixation includes a partial humeral head including a base surface having and a non stem-bearing stabilizing base extension including multiple fins protruding therefrom for impaction into a cancellous region of the cut humeral surface, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 9 (Original): The apparatus of Claim 8, wherein the protruding base extension includes two or more linear extensions for rotational stabilization.

Claim 10 (Currently amended): The apparatus of any of Claims 1 or 8, wherein the periphery of the partial humeral head fixation is formed to match cortical margins of the cut humeral surface.

Claim 11 (Currently amended): The apparatus of any of Claims 1 or 8, wherein the partial humeral head fixation is attached to the humeral surface using an adhesive.

Claim 12 (Original): The apparatus of Claim 11, wherein the adhesive is surgical cement.

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Claim 13 (Currently amended): The apparatus of any of Claims 1 or 8, wherein the partial humeral head fixation is attached to the humeral surface by press-fitting.

Claim 14 (Currently amended): The apparatus of any of Claims 1 or 8, wherein the periphery of the base of the partial humeral head fixation is formed to match a specific shape and size of the anatomic neck of a specific humeral surface.

Claim 15 (Original): The apparatus of any of Claims 1 or 8, further comprising a template punch inserted into the cut humeral surface, wherein the base extension is a total or partial male complement to the female template punch.

Claim 16 (Currently amended): A total shoulder arthroplasty apparatus for recreating an anatomic proximal humeral configuration, comprising:

a stemless, partial humeral head fixation for coupling to a cut humeral surface, wherein the partial humeral head fixation includes a partial humeral head including a base surface having and a rotationally-stabilizing base extension protruding therefrom including multiple fins for impaction into a cancellous, non-intramedullary region of the cut humeral surface, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 17 (Currently amended): The apparatus of Claim 16, wherein the periphery of the partial humeral head fixation is formed to match cortical margins of the cut humeral surface.

Claim 18 (Currently amended): The apparatus of Claim 16, wherein the partial humeral head fixation is attached to the humeral surface using an adhesive.

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Claim 19 (Original): The apparatus of Claim 18, wherein the adhesive is surgical cement.

Claim 20 (Currently amended): The apparatus of Claim 16, wherein the partial humeral head fixation is attached to the humeral surface by press-fitting.

Claim 21 (Currently amended): The apparatus of Claim 16, wherein the periphery of the base of the partial humeral head fixation is formed to match a specific shape and size of the anatomic neck of a specific humeral surface.

Claim 22 (Original): The apparatus of Claim 16, further comprising a template punch inserted into the cut humeral surface, wherein the base extension is a total or partial male complement to the female template punch.

Claim 23 (Currently amended): A total shoulder arthroplasty apparatus for recreating an anatomic proximal humeral configuration, comprising:

a partial humeral head fixation for coupling to a cut humeral surface, wherein the partial humeral head fixation includes a partial humeral head including a base surface having and a rotationally-stabilizing base extension protruding therefrom including multiple fins for impaction into a cancellous region of the cut humeral surface, and wherein the base extension is confined to protrude only into a ball region of the humerus, to which the humeral head couples, and which is above an elongate region of the humerus, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

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Claim 24 (Currently amended): A total shoulder arthroplasty apparatus for recreating an anatomic proximal humeral configuration, comprising:

a partial humeral head fixation for coupling to a cut humeral surface, wherein the partial humeral head fixation includes a partial humeral head including a base surface having and a rotationally-stabilizing base extension protruding therefrom including multiple fins for impaction into a cancellous region of the cut humeral surface, and wherein the extension is nonintrusive of an elongate humeral region below a humeral ball region including the humeral head, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 25 (Currently amended): A total shoulder arthroplasty method for recreating an anatomic proximal humeral configuration, comprising the steps of:

preparing a stemless partial humeral head fixation having a partial humeral head including a base surface having and a stabilizing base extension including multiple fins for efficient rotational stabilization of the partial humeral head fixation on a cut humeral surface for coupling with the cut humeral surface;

preparing a humeral surface for coupling the partial humeral head fixation thereto, including cutting the humeral surface to reveal a cancellous interior; and

coupling the partial humeral head fixation to the humeral surface, thereby recreating the anatomic proximal humeral configuration, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 26 (Cancelled)

Claim 27 (Previously amended): The method of Claim 25, wherein one or more of said multiple fins are substantially planar in shape.

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Claim 28. (Original): The method of Claim 27, wherein the planar shape of the one or more fins is triangular.

Claim 29 (Original): The method of Claim 25, wherein the stabilizing base extension includes two fins formed to have a cruciform shape.

Claim 30 (Original): The method of Claim 25, wherein the protruding base extension further includes at least one linear fin.

Claim 31 (Currently amended): A total shoulder arthroplasty method for recreating an anatomic proximal humeral configuration, comprising the steps of:

preparing a stemless partial humeral head fixation having a partial humeral head including a base surface having and a non stem-bearing stabilizing base extension including multiple fins for rotational stabilization of the partial humeral head fixation on a cut humeral surface for coupling to the cut humeral surface;

preparing a humeral surface for coupling the partial humeral head fixation thereto, including cutting the humeral surface to reveal a cancellous interior; and

coupling the partial humeral head fixation to the humeral surface, thereby recreating the anatomic proximal humeral configuration, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-Intramedullary.

Claim 32 (Original): The method of Claim 31, wherein the base extension includes two or more linear extensions.

Claim 33 (Currently amended): The method of any of Claims 25 or 31, wherein the coupling step includes the step of impacting the base extension into the cancellous of

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the cut humeral surface, wherein the periphery of the partial humeral head fixation rests on the cortical margins of the humeral surface following the coupling.

Claim 34 (Currently amended): The method of any of Claims 25 or 31, wherein the coupling step includes the step of adhesively coupling the partial humeral head fixation to the humeral surface.

Claim 35 (Original): The method of Claim 34, wherein the adhesive is surgical cement.

Claim 36 (Currently amended): The method of any of Claims 25 or 31, wherein the coupling step includes the step of press-fitting the partial humeral head fixation to the humeral surface.

Claim 37 (Currently amended): The method of any of Claims 25 or 31, further comprising selecting a shape and size of the periphery of the base of the partial humeral head fixation from a variety of shapes and sizes for matching the specific shape and size of the anatomic neck of the cut humeral surface.

Claim 38 (Original): The method of any of Claims 25 or 31, further comprising the step of inserting a template punch into the cancellous of the cut humeral surface prior to performing the coupling step.

Claim 39 (Original): The method of Claim 38, wherein the base extension is a total or partial male complement to the female template punch.

Claim 40 (Currently amended): The method of any of Claims 25 and 31, wherein the coupling step includes impacting the base extension of the partial humeral head fixation

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to protrude only into a ball region of the humerus above an elongate region of the humerus.

Claim 41 (Currently amended): The method of any of Claims 25 and 31, wherein the coupling step includes impacting the base extension of the partial humeral head fixation nonintrusive to an elongate region of the humerus below a ball region of the humerus.

Claim 42 (Currently amended): A total shoulder arthroplasty method for recreating an anatomic proximal humeral configuration, comprising the steps of:

preparing a stemless partial humeral head fixation having a partial humeral head including a base surface having and a non stem-bearing stabilizing base extension including multiple fins for rotational stabilization of the humeral head on a cut humeral surface for coupling to the cut humeral surface;

preparing a humeral surface for coupling the partial humeral head fixation thereto, including cutting the humeral surface to reveal a cancellous interior; and

coupling the partial humeral head fixation to the humeral surface, thereby recreating the anatomic proximal humeral configuration, including impacting the base extension of the partial humeral head fixation to protrude only into a ball region of the humerus above an elongate region of the humerus, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 43 (Currently amended): A total shoulder arthroplasty method for recreating an anatomic proximal humeral configuration, comprising the steps of:

preparing a stemless partial humeral head fixation having a partial humeral head including a base surface having and a non stem-bearing stabilizing base extension including multiple fins for rotational stabilization of the partial humeral head fixation on a cut humeral surface for coupling to the cut humeral surface;



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preparing a humeral surface for coupling the partial humeral head fixation thereto, including cutting the humeral surface to reveal a cancellous interior; and coupling the partial humeral head fixation to the humeral surface, thereby recreating the anatomic proximal humeral configuration, including impacting the base extension of the partial humeral head fixation nonintrusive to an elongate region of the humerus below a ball region of the humerus, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 44 (Withdrawn): The method of any of Claims 25, 31 or 42-43 wherein said preparing step comprises the steps of:

- surgically establishing an access to a humerus of a patient;
- coupling a guide to the humerus, wherein the humeral head remains exposed;
- positioning said guide to define a humeral surface; and
- removing said humeral head by cutting along said humeral surface defined by said guide, whereby a precise humeral surface is revealed for attaching an artificial humeral head during said arthroplasty.

Claim 45 (Withdrawn): The method of Claim 44, further comprising the step of aligning said humeral surface with a glenoid version guide.

Claim 46 (Withdrawn): The method of Claim 44, further comprising the steps of:

- preparing for coupling to the cut humeral surface a stemless humeral head having a base including a non stem-bearing stabilizing base extension for rotational stabilization of the humeral head on a cut humeral surface; and
- coupling the humeral head to the humeral surface, thereby recreating the anatomic proximal humeral configuration.

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Claim 47 (Withdrawn): A method for performing a shoulder arthroplasty, comprising the steps of:

- surgically establishing an access to a humerus of a patient;
- coupling a guide to the humerus, wherein the humeral head remains exposed;
- positioning said guide to define a humeral surface; and
- removing said humeral head by cutting along said humeral surface defined by said guide, whereby a precise humeral surface is revealed for attaching an artificial humeral head during said arthroplasty.

Claim 48 (Withdrawn): The method of Claim 47, further comprising the step of aligning said humeral surface with a glenoid version guide.

Claim 49 (Withdrawn): The method of Claim 47, further comprising the steps of:

- preparing for coupling to the cut humeral surface a stemless humeral head having a base including a non stem-bearing stabilizing base extension for rotational stabilization of the humeral head on a cut humeral surface; and
- coupling the humeral head to the humeral surface, thereby recreating the anatomic proximal humeral configuration.

Claim 50 (Currently amended): A total shoulder arthroplasty method for recreating an anatomic proximal humeral configuration, comprising the steps of:

- preparing a stemless partial humeral head fixation having a partial humeral head including a base surface having and a non stem-bearing stabilizing base extension including multiple fins for rotational stabilization of the partial humeral head fixation on a cut humeral surface for coupling to the cut humeral surface;
- preparing a humeral surface for coupling the partial humeral head fixation thereto, including cutting the humeral surface to reveal a cancellous interior; and

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coupling the partial humeral head fixation to the humeral surface, thereby recreating the anatomic proximal humeral configuration, wherein the base surface of the partial humeral head contacts or substantially mates with the cut humeral surface when coupled therewith and the base extension is impacted and non-intramedullary.

Claim 51 (Currently amended): The method of any of Claims 25, 31 or 42-43 wherein said preparing step comprises the steps of:

surgically establishing an access to a humerus of a patient;

coupling a guide to the humerus, wherein the humeral head remains exposed;

positioning said guide to define a humeral surface; and

removing said humeral head by cutting along said humeral surface defined by said guide, whereby a precise humeral surface is revealed for attaching an artificial partial humeral head fixation during said arthroplasty.

Claim 52 (Previously added): The method of Claim 51, further comprising the step of aligning said humeral surface with a glenoid version guide.

Claim 53 (Currently amended): The method of Claim 51, further comprising the steps of:

preparing for coupling to the cut humeral surface a stemless partial humeral head fixation having a partial humeral head including a base surface having and a non stem-bearing stabilizing base extension for rotational stabilization of the partial humeral head fixation on a cut humeral surface; and

coupling the partial humeral head fixation to the humeral surface, thereby recreating the anatomic proximal humeral configuration.

Claim 54 (Currently amended): A method for performing a shoulder arthroplasty, comprising the steps of:

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surgically establishing an access to a humerus of a patient;  
coupling a guide to the humerus, wherein the humeral head remains exposed;  
positioning said guide to define a humeral surface;  
removing said humeral head by cutting along said humeral surface defined by  
said guide, whereby a precise humeral surface is revealed for attaching an artificial  
partial humeral head fixation during said arthroplasty;

preparing for coupling to the cut humeral surface a stemless partial humeral head  
fixation having a partial humeral head including a base surface having and a non stem-  
bearing stabilizing base extension including multiple fins protruding therefrom for  
rotational stabilization of the partial humeral head fixation on a cut humeral surface; and

coupling the partial humeral head fixation to the humeral surface, thereby  
recreating the anatomic proximal humeral configuration, wherein the base surface of the  
partial humeral head contacts or substantially mates with the cut humeral surface when  
coupled therewith and the base extension is impacted and non-intramedullary.

Claim 55 (Previously added): The method of Claim 54, further comprising the step of  
aligning said humeral surface with a glenoid version guide.

Claims 56 – 69 (cancelled)